The article on *Compression versus Inflammation*, by Mr. Keetley, gives some good points in the use of this means of combating the inflammatory process.

In the appendix an analysis of the *use of anæsthetics* in the hospital is given, which states that during 1877 chloroform was administered 699 times, ether alone 23 times, ether preceded by nitrous oxide 1123 times, and nitrous oxide and bichloride of methylene in a few instances. This is of importance, as showing how the safer anæsthetic, ether, is gaining the ascendency over treacherous chloroform even among English surgeons.

As the result of the examination of this volume representing the daily work of one of London's oldest hospitals, the reader will notice a characteristic which all such works are apt to have in common, namely, a considerable amount of padding. A few papers stand out prominently, showing the result of accurate scientific study, while others are interposed, apparently, for the purpose of covering so many pages, and of giving the volume the requisite bulk. J. B. R.

Art. XXI.—*Diphtheria: its Nature and Treatment, Varieties and Local Expressions.* By Morell Mackenzie, M.D. Lond., Senior Physician to the Hospital for Diseases of the Throat and Chest: Consulting physician to the Northeastern Hospital for Children; and Lecturer on Diseases of the Throat at the London Medical College. 12mo. pp. 104. Philadelphia: Lindsay & Blakiston, 1879.

This little work exhibits the accuracy, care, fulness of research, and facility of condensation which have been displayed by its author in his previous essays on throat diseases. Its contents are divided into eleven chapters, entitled, successively, definition and history, etiology, symptoms, paralyses, diagnosis, pathology, prognosis, treatment, laryngo-tracheal diphtheria, nasal diphtheria, and secondary diphtheria, preceded by a brief preface, and followed by a full index.

The development of opinion concerning diphtheria during a period of nearly twenty years since any English work upon the subject has appeared, led the author to believe that a short sketch, from one who has had considerable opportunities of studying it, would be of interest and use to the profession. Allusion is made in the preface to diphtheria as the cause of the deaths of George Washington and the Empress Josephine; but these deaths have been generally attributed to œdema of the larynx in acute laryngitis.

The definition of diphtheria, consuming nearly twenty-one lines, is in reality, rather a concise summary of the general character, manifestations, symptoms, and progress of the disease. Its language, in the outset, indicates the author's disbelief in the spontaneous origin of diphtheria; for, instead of describing the disease as sometimes occurring *sporadically*, he introduces a new epithet, *solitarily*, to which attention is directed in a foot-note, and further on, in the chapter on etiology, the opinion is expressed that "those cases which appear to originate *de novo* probably always arise from the virus, often long dormant and forgotten, of previous cases." The argument for this opinion is discussed at full length, drawn from the researches of Simon and other writers on sanitary topics in this connection, as well as from individual observations, including those of the author, who mentions that in one instance he has known the poison to remain dormant for three years, and then again to become active.

In discussing the history of diphtheria, the evidence of researches is carried farther back than in any previous history that we can recall. Its probable recognition is traced to the Sanskrit *System of Medicine*, by D'hanvantare, "at a time nearly coeval with that of Pythagoras," and to the epidemic Askara of the Talmud, as well as to other authorities more familiar to the medical antiquarian. A very full and succinct historical record follows for eight pages, with numerous references; a little mine of bibliographic metal for future explorers. The observations of our own Bard (unwittingly accredited to Philadelphia instead of New York, being quoted from Trans. American Philosophical Society, Philadelphia, 1789, and not from his Researches, etc., on Sore Throat, N. Y. 1771) receive due acknowledgment for their accuracy.

With regard to the nature of diphtheria, the judicious statement is made that observations are not sufficiently conclusive to warrant a conclusion as to the essence of the disease; and it is intimated that the "germ theory" explains all the phenomena of the specific fevers. The remarks on climatic and atmospheric conditions favourable to the contagion, its mode of diffusion, and the like, hardly call for special comment other than that they faithfully represent the most approved current professional opinions, save, perhaps, that one attack probably affords a very slight protection against recurrence.

In describing symptoms, the disease is classified into several constitutional forms: (1) *typical*, (2) *mild or catarrhal*, (3) *inflammatory*, (4) *malignant*, (5) *gangrenous*, and (6) *chronic*. This nicety, growing out of a commendable love for method, seems somewhat in excess of what is required, inasmuch as differences of degree, dependent on a variety of causes, many of which are by no means constitutional, present us at times with groups of symptoms which cannot be referred to typical or other special varieties, but partake of several of the subdivisions. Indeed, too, our author states that the student must not expect to find the first three forms always clearly defined; on the contrary, they are apt to run into one another, or their special features may be more or less combined. Typical cases of disease, when not immediate clinical transcriptions in the strictest sense of the term, as rarely happens, are often ideal impressions of a series of cases from which a certain sequence of phenomena is deduced, without being susceptible of precise verification at the bedside. A typical case of diphtheria as described by the reviewer, for instance, would include the symptoms relegated to the inflammatory form of the disease in the work under discussion; those due to active hyperæmia, acute pharyngitis, tumefaction of the tonsils, enlargement and hyperæsthesia of the glands at the angle of the jaw, and so on.

Taking together the groups of symptoms in the first three divisions, we find no reference to the condition of the respiration, the nocturnal wakefulness and restlessness, and the cerebral manifestations in young and feeble children. The rapid rise in temperature and pulse-rate is duly noted, and it might be inferred, from want of direct allusion, either that there was no increase in the rate of respiration, or that it retained its normal proportionate relation to the pulse-rate as in febrile disorders generally; while it is a common point of comment that typical diphtheria is characterized by acceleration of the heart-beats without proportionate increase of the respiratory acts. The objective symptoms are unusually well described. Gangrenous diphtheria is said to be rare in Great Britain, except as a secondary phenomenon following scarlet fever, and appears to be more uniformly fatal than in the United States.

Chronic diphtheria, of which but little is known in this country, is described by a brief record of a number of examples, eleven of which came under the author's care in 1863-4, all walking cases and not much debilitated. There was laryngeal deposit in three of them; constant albuminuria in two, and intermittent albuminuria in two; the longest duration having been three months, the shortest seven weeks, and the average nine weeks. Mechanical removal of the false membrane was in all the cases followed by bleeding, and quick reproduction of the deposit. Among cases quoted from other observers, two are mentioned from the Parisian Hôpital Sainte-Eugénie, in which false membranes were expelled for eight and ten weeks, respectively, after the performance of tracheotomy for laryngeal diphtheria.

In discussing the paralytic sequelæ of diphtheria, it is stated that in rare cases paralysis of the larynx may occur without implication of other structures, and that this paralysis may involve the whole muscular apparatus of the larynx, or may be limited to single muscles; the adductors (which close the glottis) generally suffering in instances of the latter sort, and often as to one cord only. Two cases of permanent paralysis of the recurrent nerve, following diphtheria, have come under the author's notice. The entire chapter on paralyses is one of the most valuable in the book.

The differential diagnosis of diphtheria from simple sore throat, scarlet fever, confluent herpes of the throat, acute tonsillitis, and acute laryngitis, is fairly discussed; but an opinion that herpes has no tendency to spread beyond the seat of its first efflorescence appears to the writer far too absolutely expressed.

Twelve pages are devoted to the chapter on pathology. No special significance is attributed to the parasitic phenomena of the deposit, and this is in accord with the opinion of our most reliable pathologists. In seven cases examined by the author for epiphytes he discovered the fungus in five, "in every case, however, in the superficial layer of the lymph." It is unnecessary to follow the author further in this interesting chapter, which, like all the others, gives due credit wherever it belongs; but we may record his conclusions, which are that the *primary septicæmia* is due to the specific poison, while absorption from the decomposing lymph is no doubt a cause of *secondary infection;* and that the local symptoms (the false membrane with its parasitic growth) must be regarded as the first evidence of constitutional poisoning, in fact as the first of the secondary phenomena.

In regard to prognosis, the special symptoms of grave import are stated to be high temperature, extreme prostration, hemorrhages, or urgent vomiting at the commencement of the attack, indicative of extensive general infection; and, other things being equal, the prognosis is serious in proportion to the thickness and extent of the exudation; while prostration and a tendency to syncope are alarming signs at any period of the attack. The presence of albumen is not considered a symptom of much importance. Dr. Wade, however, to whose recognition of this symptom the profession is chiefly indebted for a knowledge of its significance, considered impairment of the renal function always of grave augury; and it is generally regarded as an unfavourable indication, fatal results being apprehended whenever albumen is very abundant.

Sixteen pages are devoted to the important subject of treatment. Supporting treatment is advised, with free ventilation, and warm and moist air, and a bedroom temperature of from 60° to 65°—some degrees lower, therefore, than is usually recommended in the United States. Especial attention is directed to the importance of "feeding during the night when the vital power is usually at its lowest ebb"—a point well taken. The use of alcohol is recommended, not invariably, it is true, but at times, "with a boldness rarely needed in other forms of disease," a sentiment with which many of our most competent practitioners are in full accord. The first intimation of failure of the heart is designated as the signal for the unsparing use of that drug; and attention is directed to the importance, at the same time, of keeping the patient with his head low, and interdicting any movement whatever. The value of the various remedies in most commendation is briefly and fairly discussed, preference being given to iron as undoubtedly the most useful recuperative agent. Thirty minims of the tincture of the perchloride of iron, every two or three hours, are recommended for an adult, and proportionate doses for children, combined with glycerine, and diluted with water. The occurrence of headache, with high temperature, vomiting, and symptoms of septic poisoning, are regarded as indications for quinia in full doses, not to be persisted in, however, if benefit fails to result in thirty-six or, at the most, forty-eight hours. It is the belief of the writer that too much is often expected from quinia in diphtheria, and that its continuance, when not positively beneficial, induces unfavourable perturbation of the nervous system. As to mercury, it is stated that its general influence rather promotes the spread of the exudation than checks it. The author has found distinct benefit from using the *perles* of copaiba in catarrhal cases, but does not state that he administers the drug in the large doses employed by Trideau and others. Chlorate of potassium, so much employed in the United States, is mentioned among general antiseptics as having the general weight of evidence very much in its favour; ten to twenty grains being indicated as the dose, repeated every two or three hours. Sulphocarbolates have proved of service in the author's hands in the *secondary* poisoning of diphtheria, but have appeared to him quite useless in the *primary* septicæmia. Salicylic acid is mentioned as having been of apparent advantage, one to two teaspoonsful of a solution, as follows, being recommended every three hours: ℞. Acid. salicylic. ʒiss; Spt. rect. ℥ijss; Aquæ destill. ad ℥iv; M. Ft. liquor. Senega, carbonate of ammonium, and the balsams are mentioned as useful expectorants.

With regard to local treatment it is remarked that "the profession has given up the use of caustics altogether, being convinced that they rather aggravate than check the local process." The author now seldom uses a local astringent except iron, which acts topically, also, when employed as a constitutional remedy.

Of all local solvents, lactic acid is considered the most reliable. The author generally applies it freely with a brush, or by means of a piece of lint attached to a wooden rod; and he has never met the inconvenient results from its use described by Küchenmeister—ulceration of the mucous membrane of the lips and mouth. Lime-water is said to be useful when the false membrane is not very thick. The use of the fumes from lime in process of slaking, the very valuable suggestion of Dr. Geiger, of Dayton, Ohio, so much practised in the United States, is not mentioned.

Passing much interesting matter on the local use of antiseptics, with which the readers of the Journal must be familiar, attention may be directed to a new method of local treatment, apparently original with the author. This consists in the application of certain *varnishes*, which, by exclusion of air from the false membrane, appear to exert antiseptic influences. The author has tried gum benzoin, gum tolu, mastich, and resin, which may be dissolved in rectified spirit or in ether, or in a mixture of the tincture of the gum or resin with ether. Preference is expressed for the ethereal solution (1 in 5), and for tolu as the pleasantest to the patient, and the most lasting as a varnish, so that it has to be least frequently applied. Before making these applications, it is directed that the surface of the false membrane should be dried with blotting-paper.

The use of pellets of ice in the mouth, and the application around the neck of bags or bladders of ice is recommended as especially indicated for relief in the first stage of the disease, particularly when there is much inflammatory tumefaction. As is well known, some pathologists believe that ice retards excessive cell-growth.

Heat is regarded as a useful agent when the false membranes have attained any considerable degree of thickness, both in the form of hot fomentation externally, and in the form of steam inhalations.

Dr. Prosser James, of London, is credited with having first suggested steam as a remedy in diphtheria, but he is antedated by Wanner (*Du Croup et de son traitement par la vapeur d'eau*, Paris, 1834). As is well known, steam inhalations have recently been strongly advocated by Oertel, of Munich, to precipitate a suppurative process beneath the false membrane and thus detach it; and in this view he has the support of our author. It is not unlikely, however, that, when employed sufficiently early, these inhalations keep the exuded or cast-off matters diffluent, and thus more easily detached by expectoration; and if administered in the fumes of slaking lime there is an additional advantage in the simultaneous penetration of some of the innumerable particles of suspended lime beneath the edges of the false membrane at many points, prying it up mechanically, as it were, and thus providing inlets for access of the steam which effects the detachment subsequently. There is no doubt as to the benefits to be obtained from steam, whether alone or mingled with lime, as an agent in detaching the membranous products, especially when occluding the air-passage.

Chapter IX. is entitled "Laryngo-tracheal Diphtheria, formerly called Croup." Here we see that our author, with the majority of his professional colleagues, believes in the identity of croup and diphtheria. The usual arguments for this opinion are presented. The fact that the general symptoms in croup are less severe than when the membrane is thrown out on an extensive portion of the pharynx is explained on the theory that the septic symptoms are in part secondary to the local processes. "For whilst the lymphatics of the mucous membrane of the soft palate, of the tonsils, and of the back of the pharynx have very free communication with the numerous glands below the angle of the jaw, the absorbent vessels of the mucous membrane of the larynx and trachea are conveyed only to the solitary gland just below the greater horn of the hyoid bone, and the small gland at the side of the trachea." This application of the important anatomical fact demonstrated by Luschka, and duly accredited to him here, is novel to the writer; and certainly seems to show that "there is much less liability to general infection when the local process has seized only on the" larynx and trachea. Still, however, there are many observers who claim to make clinical distinctions between croup and diphtheria, as demonstrated at the bedside. One is the retention of the normal relation of the respiration to the pulse in the febrile condition, alluded to, in an earlier portion of this article, as not being maintained in typical cases of diphtheria; others are that the pulse is often strong and hard, the heart not depressed; that albumen is rarely in the urine; that croup is not followed by paralysis, and some further points of minor consideration. Our author disposes of two of the most important in the group by stating that albuminuria is often present in croup, and that paralysis is occasionally met with in cases that survive. Amid all these doubts and uncertainties who shall decide? When partisans of both views attend undoubted cases of inferred croup together, and report on them alike—then, and not until then, can this question be determined. The subjective and objective symptoms, laryngoscopy included, are well presented, and the points of differentiation from catarrhal laryngitis and laryngismus indicated. The dyspnœa is referred to the inflammatory tumefaction and plastic exudation, which give rise to spasm of the adductors. Paralysis of the abductors is denied; yet we have the authority of Niemeyer and others that they have observed it in the laryngoscopic image. In reference to treatment, it is to be noted that direct mechanical attempts at removing loose membrane from the larynx are advised, the appliance used by the author being a laryngeal-brush of squirrel-tail, the hairs of which cover the sides of the brush, and present upward.

In discussing tracheotomy, the performance of which is justly considered an important duty in certain cases, attention is properly directed to the extreme importance of withdrawing any loose false membrane immediately after the operation, and to the necessity for careful supervision of the after-treatment.

The short chapter on Nasal Diphtheria does not call for comment. A few pages on Secondary Diphtheria close this interesting volume. The diseases in which the manifestation occurs, as abridged from a table by Sanné, are measles, scarlatina, whooping-cough, typhoid fever, smallpox, nettle-rash, bronchitis, pneumonia, pleurisy, tuberculosis, and various cachexiæ (scrofula, chronic diarrhœa, etc.). The treatment, local and general, must be the same as in the primary disease.

The increasing importance of diphtheria in a clinical and sanitary point of view, is such that every valuable contribution from a reliable source merits full consideration; and as the little volume of Dr. Mackenzie is both valuable and well-fathered, it has not been deemed improper to devote considerable space to an exposition of the character of its contents. It is hoped that the summary given will induce all our interested readers to find a place for it in their working libraries.

J. S. C.

ART. XXII.—*Recent Works on Medical Diagnosis.*

1. *Clinical Diagnosis; a Handbook for Students and Practitioners of Medicine.* Edited by JAMES FINLAYSON, M.D., Physician and Lecturer on Clinical Medicine in the Glasgow Western Infirmary, etc. With 85 illustrations. 12mo. pp. 546. Philadelphia: Henry C. Lea, 1878.
2. *Differential Diagnosis; a Manual of the Comparative Semeiology of the more Important Diseases.* By Dr. F. DE HAVILAND HALL, M.D., Assistant Physician to the Westminster Hospital, London. American edition, with extensive additions. 8vo. pp. 205. Philadelphia: D. G. Brinton, 1879.
3. *A Manual of Physical Diagnosis.* By FRANCIS DELAFIELD, M.D., and CHARLES E. STILLMAN, M.D. Quarto, pp. 30. New York: William Wood & Co., 1878.

To most of our readers it will probably seem trite to say that there can be no correct therapeutics in the absence of diagnosis, and that consequently the latter is one of the most important branches of the medical art; but it would appear that all do not hold this opinion, since we recently heard the contrary of this proposition gravely maintained. That it may sometimes be necessary to treat symptoms before an accurate diagnosis can be made, all will admit; but it will scarcely be contended that this is desirable, or that it is often necessary. For ourselves, we hold that it is more important to teach students how to recognize the different forms of disease than how to treat them, having witnessed, in the course of a score of years of practice, some decided changes in the management of disease. The art of diagnosis, on the other hand, while it has improved, has undergone no fundamental change during this time; and while our methods of examination have increased immensely in the last fifty years, it is questionable whether we do not sometimes lose by neglecting those upon which our predecessors were accustomed to rely. These few remarks seem to be called for by the almost simultaneous appearance of three books on diagnosis—a sufficient proof of the